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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/656,694	09/07/2000	Aravind Padmanabhan	9028/322(H16-26318)	2388

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HONEYWELL INTERNATIONAL INC.  
101 COLUMBIA ROAD  
P O BOX 2245  
MORRISTOWN, NJ 07962-2245

EXAMINER

EASTHOM, KARL D

ART UNIT PAPER NUMBER

2832

DATE MAILED: 02/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/656,694	<b>Applicant(s)</b> PADMANABHAN ET AL.	
	<b>Examiner</b> Karl D Easthom	<b>Art Unit</b> 2832	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 20 December 2003.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-35 is/are pending in the application.
- 4a) Of the above claim(s) 19-32 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-18 and 33-35 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |  |
|---|--|
| <p>1) <input type="checkbox"/> Notice of References Cited (PTO-892)</p> <p>2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)</p> <p>3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br/>Paper No(s)/Mail Date _____.</p> | <p>4) <input type="checkbox"/> Interview Summary (PTO-413)<br/>Paper No(s)/Mail Date. _____.</p> <p>5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)</p> <p>6) <input type="checkbox"/> Other: _____.</p> |
|---|--|

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 4-5, 8, 14, 33 and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by Strott et al. Strott discloses the claimed invention at Fig. 1, with independent sensing elements 3, 12, 13 coupled to the front surface of insulating sensor body 4 having connection material 8,9 in a plurality of openings thereof. With the element body being 2, bumps 8,9 extends from front to back, as noted at col. 4, lines 15-23, and lines 60-65. One of the sensors 3 is a heater. The continuous solid body includes portions of 4 below the sensors 2, because the body is flip mounted to an alumina substrate at col. 1, lines 30-36, and col. 2, lines 30-32, with the part 5 away from the alumina substrate. Thus the connection material is configured for connection to any substrate. The device is a physical property sensor sense it senses heat from element 5. The thermal conductivity of 2 is low enough to substantially prohibit heat transfer between the plurality of heat sensors, where the term "substantially" is one of degree as is "low", and moreover, each thermistors obtains its own temperature as noted at col. 5, lines 5-30, so that the sensor body, which is not perfect, does somewhat limit the heat flow. In claim 8, 4 is glass. In claim 14, there are at least two materials, 2 and the nonoxidizing coating at col. 2, lines 25-32 which is also included as a material. Either one is below the sensing elements because the device can be flip mounted as noted above at col. 2, lines 28-32. In claims 2 and 5, the heater can be any of the sensors since resistors must heat. In claim 35, the materials are

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substantially similar where the term is one of degree. In claim 33, the thermal conductivity is low where the term is one of degree.

3. Claims 1, 4, 8, 14, 33 and 35 are rejected under 35 U.S.C. 102(e) as being anticipated by Mastromatteo et al. Mastromatteo discloses the claimed invention at Figs. 4-7, with sensing elements 24, 25 with heater 21 coupled to the front surface of insulating body 15 having connection material 14c, 22 in a plurality of openings thereof. In claim 4, it senses the gas environment, see the abstract. In claim 35, the materials are substantially similar where the term is one of degree.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 4-16 and 33-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bertram in view of Morimasa et al. The claimed invention is disclosed as noted below, except the heater and two thermal sensors, and the materials for the substrate of glass, and silicon. The noted arrangement is disclosed at Fig. 4 of Morimasa with sensors 9,10 and heater 8, while the substrate 2 is either silicon or photosensitive glass, see col. 2, lines 1-65, and col. 4, lines 24-35, as typical arrangements for thermal sensors, such that it would have been obvious to arrange the thermal sensor of Bertram et al. as a typical flow sensor having the typical materials for the purpose of forming a robust sensor, as disclosed at col. 1 of Bertram. In claims 8 and 9, highly melting and insulating are terms of degree deemed met by the materials noted. In claims 11-12, the type of materials are known as photosensitive glasses so that it would have been obvious to

employ any type where a photosensitive glass is disclosed. The types are so well known as to have trademarks. Applicant also admits at page 13 that Pyrex is well known in the art for manufacturing glass components. Bertram discloses at Fig. 2 the sensor as an RTD temperature sensor 8, with connection material 4 filling openings in the solid body 2. The openings are filled at 4, where the claim does not require the filling to extend from front to back, only that the openings extend from front to back. As an alternative, Bertram at the top of col. 2 discloses a tight fitting plug to ensure that the lead wire is secured. It would have been obvious to have the hole completely filled in order to make sure there is a tight fit and thus ensure an even stronger ensured connection where more material is obviously stronger than less. The detector is in the environment and detects temperature there - claim. 4. In claims 7 and 10, alumina is disclosed for the material of substrate 2. In claims 14-16, col. 2, lines 1-5 discloses more than two plugs 4 and holes. Or in claim 14, the insulator 10 and substrate 2 meet the claim as a second and first material, with the first material 2 below the sensing elements. Or as another alternative to claims 14-16, the insulator 10 is a first material plug, which is depicted as substantially cylindrical within the vias in Fig. 2, thus below the sensing film 8. Or, the insulator 10 is below the sensing elements when the device is upside down, such as happens during shipping or handling.

6. Claims 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bertram with Morimasa; further in view of Gerblinger et al. The invention disclosed as noted above except the first material of glass. Bertram discloses a first material 10 that is insulating and hatched as glass, that is depicted as below the sensors 8 in the form of a plug at Fig. 2.

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Gerblinger discloses using glass to protect platinum type sensors such as that of Bertram, so that it would have been obvious to employ glass to protect the sensors.

7. Claims 11-12 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bertram with Morimasa ; further in view of Kushida et al. The claimed invention is disclosed as noted above, except fused silica as a substrate . Kushida discloses fused silica - or quartz, as a substrate 14, such that it would have been obvious to employ the known substrate as a substrate for a temperature sensor such as that of Bertram, to alter the desired response time. As to claims 12 and 34, generically glass is claimed, so that the claims are met.

8. Applicant's arguments filed 12/30/03 have been fully considered but they are not fully persuasive. Applicant argues that Strott describes a temperature switch. This is not germane. t. The Strott sensor senses the physical property of current for example, as from heat from the wire. As to Strott, applicant argues there is sensor "for monitoring the properties of a fluid". This is not correct, because the sensor could monitor the property of a fluid, and applicant's functional language imparts minimal if any structural distinction and is at most a field of intended use. Fluid flow can be sensed by such thermistors since fluid will cool the thermistors whose resistance will then change, sensing the fluid.

9. Applicant argues that the sensors are not "coupled" to a front surface. This is not correct, the sensors are "coupled" to any number of surfaces of the device where the term is broad. (This argument applies to Mastromatteo et al. and Strott.) The continuous solid body is below, such as 2 as noted. That is, a portion of same is below. Similarly, applicant contends air is below the sensor. If this were true it would be suspended in air which it is not. Body 15 is clearly below. Applicant argues that the thermal conductivity is not low enough to substantially

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prohibit heat transfer between the plurality of heat sensors. This is not correct where the term “substantially” is one of degree as is low, and where each thermistors has its own independent temperature difference, as noted at col. 5, lines 5-30, so that the sensor body, which is not perfect, does somewhat limit the heat flow. As to claim 14, the two elements are 2, 4, or the nonoxidizing coating at col. 2, lines 25-32 is also included. With the element body being 2, 4, bumps 1 extend through both, as noted at col. 4, lines 15-23, and lines 60-65.

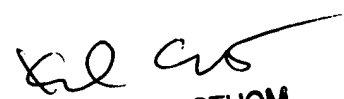
10. Applicant argues that the openings of Bertram are not filled. This is not correct. The openings are filled by material 4, where the claim does not require the material to fill the openings from front to back, it only requires the openings to extend from front to back. As an alternative, Bertram discloses a tight fitting plug at the top of col. 3 to ensure that the lead wire is secured. It would have been obvious to have the hole completely filled in order to make an even stronger ensured connection where more material is obviously stronger than less. As to the material 2 it is below the sensor 8. Morimisa is employed only for the heater arrangement, which is a well known arrangement, as noted. For example, Strott teaches a similar arrangement. The cavity is not required to sense fluid as Bertram discloses. Applicant argues that the plugs of Bertram cannot be part of the substantially insulating material body because they are not insulating and they are the connection material. As to the latter, the claim requires only a plurality to be connection material, the remainder are considered part of the “substantially” insulating body where the term allows for some portion to be insulating because “substantially” is a broad term, and the body, even with a plurality of plugs, is still substantially insulating. As to the modification with Bertram, applicant argues there can be no coupling to the front surface, again “coupling” is a broad term that fails to require the device on the surface.

Applicant argues in another alternative asserted by the examiner that the material 10 is not in the hole, but is clearly seen there at Fig. 2 as the same dielectric hatching as the material 10 above the sensors.

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karl Easthom whose telephone number is (703)308-3306. The examiner can normally be reached on M-Th. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Elvin Enad, can be reached on (703)308-7619. The fax phone number for the organization where this application or proceeding is assigned is (703)308-7722. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

  
KARL D. EASTHOM  
PRIMARY EXAMINER